

Agilent Ref: 10010729-1  
United States Application Serial No. 09/900,760

### AMENDMENTS

#### In the claims:

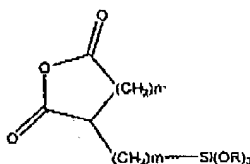
Cancel Claims 1-16.

17. **(Original)** A method for fabricating a microarray, said method comprising:
- (a) producing a polyelectrolyte layer on at least one surface of a substrate;
  - (b) depositing a plurality of spots of ligands on said polyelectrolyte layer, said ligand spots arranged in an array pattern;
  - (c) contacting said polyelectrolyte layer with a reagent comprising:
    - (i) a passivating moiety that reacts with said polyelectrolyte layer, and
    - (ii) a substrate reactive functionality; and
  - (d) producing a covalent bond between said substrate reactive functionality and said substrate.
18. **(Original)** The method of claim 17, further comprising cross-linking said ligand spots onto said polyelectrolyte layer.
19. **(Original)** The method of claim 18, wherein said ligands comprise nucleic acids.
20. **(Original)** A method for fabricating a microarray, said method comprising:
- (a) producing a polyamine layer on at least one silica surface of a substrate;
  - (b) depositing a plurality of spots of ligands on said polyamine layer, said ligand spots arranged in an array pattern;
  - (c) contacting said polyamine layer with a solution of a trialkoxysilyl anhydride; and
  - (d) forming a covalent bond between said anhydride and said polyamine layer and a covalent silicon-oxygen bond between said trialkoxysilyl propyl anhydride and said silica surface on said substrate.

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21. **(Original)** The method of claim 20, wherein said polyamine comprises poly(L-lysine).

22. **(Original)** The method of claim 20, wherein said trialkoxysilyl anhydride comprises a compound having the structure:



wherein n is either zero or an integer from 1 to 10, m is either zero or an integer from 1 to 10, and R is an alkyl or functionally terminated alkenyl group.

23. **(Original)** The method of claim 22, wherein n is an integer equal to 1 or 2, and m is either zero or an integer from 1 to 4.

24. **(Original)** The method of claim 20, wherein said trialkoxysilyl anhydride comprises 3-(triethoxysilyl)propyl-succinic anhydride.

25. **(Original)** The method of claim 20, further comprising cross-linking said ligand spots onto said polyamine layer.

26. **(Original)** The method of claim 20, wherein said ligands comprise nucleic acids.

Cancel Claims 27-40.

Please add the following new claims:

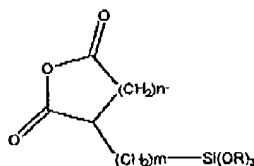
41. **(New)** A method for fabricating a microarray, said method comprising:

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- (a) producing a polyelectrolyte layer on at least one surface of a substrate;
  - (b) depositing a plurality of different aqueous volumes on said polyelectrolyte layer in an array pattern to produce an array of deposited spots, wherein each aqueous volume of said plurality comprises a polymer;
  - (c) contacting said polyelectrolyte layer with a reagent comprising:
    - (i) a passivating moiety that reacts with said polyelectrolyte layer, and
    - (ii) a substrate reactive functionality; and
  - (d) producing a covalent bond between said substrate reactive functionality and said substrate.
42. (New) The method of claim 41, further comprising cross-linking polymers of said deposited spots onto said polyelectrolyte layer.
43. (New) The method of claim 41, wherein said polymers are nucleic acids.
44. (New) The method of claim 41, wherein said polymers are peptides.
44. (New) The method according to Claim 41, wherein said plurality of aqueous volumes are deposited by ink-jet deposition.
45. (New) The method according to Claim 41, wherein said polyelectrolyte is a polyamine.
46. (New) The method of claim 45, wherein said polyamine comprises poly(L-lysine).
47. (New) The method of claim 41, wherein said reagent is a trialkoxysilyl anhydride.

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48. **(New)** The method of claim 47, wherein said trialkoxysilyl anhydride comprises a compound having the structure:



wherein  $n$  is either zero or an integer from 1 to 10,  $m$  is either zero or an integer from 1 to 10, and  $R$  is an alkyl or functionally terminated alkenyl group.

49. **(New)** The method of claim 48, wherein  $n$  is an integer equal to 1 or 2, and  $m$  is either zero or an integer from 1 to 4.

50. **(New)** The method of claim 47, wherein said trialkoxysilyl anhydride comprises 3-(triethoxysilyl)propyl-succinic anhydride.

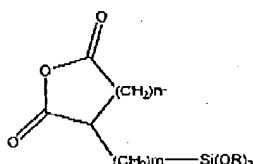
51. **(New)** A method for fabricating a nucleic acid microarray, said method comprising:

- (a) producing a polyamine layer on at least one silica surface of a substrate;
- (b) depositing a plurality of different aqueous volumes of nucleic acids on said polyamine layer in an array pattern to produce an array of deposited nucleic acid spots;
- (c) contacting said polyamine layer with a solution of a trialkoxysilyl anhydride; and
- (d) forming a covalent bond between said anhydride and said polyamine layer and a covalent silicon-oxygen bond between said trialkoxysilyl propyl anhydride and said silica surface on said substrate.

52. **(New)** The method of claim 51, wherein said polyamine comprises poly(L-lysine).

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53. (New) The method of claim 51, wherein said trialkoxysilyl anhydride comprises a compound having the structure:



wherein n is either zero or an integer from 1 to 10, m is either zero or an integer from 1 to 10, and R is an alkyl or functionally terminated alkenyl group.

54. (New) The method of claim 53, wherein n is an integer equal to 1 or 2, and m is either zero or an integer from 1 to 4.

55. (New) The method of claim 51, wherein said trialkoxysilyl anhydride comprises 3-(triethoxysilyl)propyl-succinic anhydride.

56. (New) The method of claim 51, further comprising cross-linking said nucleic acid spots onto said polyamine layer.

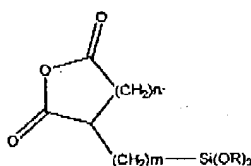
57. (New) A method for fabricating a peptide microarray, said method comprising:

- producing a polyamine layer on at least one silica surface of a substrate;
- depositing a plurality of different aqueous volumes of peptides on said polyamine layer in an array pattern to produce an array of deposited peptide spots;
- contacting said polyamine layer with a solution of a trialkoxysilyl anhydride; and
- forming a covalent bond between said anhydride and said polyamine layer and a covalent silicon-oxygen bond between said trialkoxysilyl propyl anhydride and said silica surface on said substrate.

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58. (New) The method of claim 57, wherein said polyamine comprises poly(L-lysine).

59. (New) The method of claim 57, wherein said trialkoxysilyl anhydride comprises a compound having the structure:



wherein n is either zero or an integer from 1 to 10, m is either zero or an integer from 1 to 10, and R is an alkyl or functionally terminated alkenyl group.

60. (New) The method of claim 59, wherein n is an integer equal to 1 or 2, and m is either zero or an integer from 1 to 4.

61. (New) The method of claim 57, wherein said trialkoxysilyl anhydride comprises 3-(triethoxysilyl)propyl-succinic anhydride.

62. (New) The method of claim 57, further comprising cross-linking said nucleic acid spots onto said polyamine layer.

63. (New) The method of claim 17, wherein said depositing step (b) comprises depositing a plurality of different aqueous volumes of ligands on said polyelectrolyte layer.

64. (New) The method according to Claim 63, wherein said ligands are nucleic acids.

65. (New) The method according to Claim 63, wherein said ligands are peptides.

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66. **(New)** The method according to Claim 63, wherein said plurality of aqueous volumes are deposited by ink-jet deposition.

67. **(New)** The method of claim 20, wherein said depositing step (b) comprises depositing a plurality of different aqueous volumes of ligands on said polyelectrolyte layer.

68. **(New)** The method according to Claim 67, wherein said ligands are nucleic acids.

69. **(New)** The method according to Claim 67, wherein said ligands are peptides.

70. **(New)** The method according to Claim 67, wherein said plurality of aqueous volumes are deposited by ink-jet deposition.